

REMARKS

In the Office Action dated March 10, 2004, the Examiner rejected claims 14-19, 21, 22, 44-49, and 51-52 under 35 U.S.C. § 102(b) in view of Donovan et al. (U.S. Patent No. 6,072,951) and rejected claims 1-5, 10, 23, 26-28, 35-39, and 53 under 35 U.S.C. § 103(a) as being unpatentable over Donovan et al. (U.S. Patent No. 6,072,951) in view of Reeve et al. (U.S. Patent No. 5,535,393).

By this amendment, Applicant amends claims 14 and 44. Based on these amendments and the following remarks, Applicant respectfully traverses the rejection of claims 1-5, 10, 14-19, 21-23, 26-28, 35-39, 44-49, and 51-53.

I. Rejections under 35 U.S.C. § 103(a)

The rejection of claims 1-5, 10, 23, 26-28, 35-39, and 53 under 35 U.S.C. § 103(a) is respectfully traversed for the following reasons.

The Examiner asserts that Donovan et al. teaches:

identifying a range of variables associated with a first execution characteristic of the subprogram (Column 1, lines 21-25). Donovan teaches that a value of a variable can change the flow of the program. When the flow of the program changes, the characteristics of the program change due to a new flow of programming being executed; (c) associating the range of variables with a first execution path of the subprogram. This is obvious from the statement in Donovan in Column 1, lines 21-25. Since the subprogram being executed is dependent on a value of the variable, the variable must be associated with the subprogram being executed, otherwise, control, program flow to continue in different directions based on the value of the variables would be in operative.

See Office Action, page 5, lines 3-11.

Further, in responding to Applicant's arguments, the Examiner asserts:

Donovan, however, does teach identifying variables whose value range alters the program path of a program in the background section of the patent, and thus the values must be associated with program paths that they executed (Column 1, lines 1-26), otherwise, control program flow to continue in different directions based on the value of variables would be inoperative. This view is further supported in the Background of the current application (Page 2, lines 16-22), and thus can be treated as prior art. The fact that values of variables can alter the flow of a program, and thus alter the characteristics of a program sub-path, is exceedingly well known in the art.

See Office Action, page 9, line 18 to page 10, line 4.

Applicant disagrees with the Examiner's interpretation of Donovan et al. The reference discloses a system that enhances the performance of a compiler by inlining frequently executed paths of child procedures. The system estimates path frequencies for each procedure in a program and constructs a call graph representing execution paths between various child and parent procedures. Using the call graph, the system inlines frequently executed paths of each child procedure such that the inlined paths are executed with the child's parent procedure.

Although the Examiner is correct that a value of a variable can change the flow of a program, the passage in Donovan et al. cited by the Examiner describes this concept in the context of recognizing programs that are suitable for compilation. Contrary to the Examiner's assertions, Donovan et al. does not mention or even suggest identifying a range of values associated with a first execution characteristic of a subprogram and associating the range of variables with the a first execution path of the subprogram. ***There is a difference*** between explaining the concept of how a program flow may change due to values of a program and actually identifying a range of values associated

with a characteristic of a subprogram in the process of inlining a program. Nowhere does Donovan et al. mention that in determining placement of directives, a range of values is considered.

For example, Donovan et al. uses conventional profiling techniques to construct a call graph. The profiling techniques are used by Donovan et al. to estimate path frequencies. See e.g., Donovan et al., col. 6, lines 25-40. Contrary to the Examiner's assertions, however, these and other techniques employed by Donovan et al. do not identify a range of variables associated with a first characteristic.

Moreover, the Examiner is incorrect in asserting that Donovan et al. discloses associating the identified range of variables with a first execution path of the subprogram. Instead, the Examiner merely concludes that because a program may be dependent on a variable, the variable is associated with the program. This line of reasoning does not address the fact that Donovan et al. does not teach associating the "identified" range of variables with a first execution path.

Additionally, Applicant traverses the Examiner's statement that page 2, lines 16-22 of Applicant's specification supports the Examiner's position that the frequency of execution paths are altered, and thus "would be based on arguments." See *Office Action*, page 8, lines 19-20. Instead, page 2, lines 16-22 of Applicant's disclosure actually contradicts the Examiner's position:

[h]owever, the typical rules implemented by a compiler **do not account** for subprograms that exhibit varying execution characteristic due to the range of variables or arguments over which the subprogram operates. With the varying arguments, the subprogram's actual run-time may be substantially influenced depending on the argument received. [emphasis added].

As can be seen, the portion cited by the Examiner actually refers to the problems associated with automatic inlining processes, similar to those found in Donovan et al., and thus contradicts the Examiner's position asserted in the Office Action.

Further Reeve et al. does not make up for the deficiencies of Donovan et al. Reeve et al. discloses a system that uses directives for converting iterative program sequences to "tiled" sequences used in parallel executions. The sequences are arranged into subtasks which are allocated processors. Reeve et al., and Donovan et al., alone or in combination, fail to support the Examiners assertions set forth in the Office Action. For example, although these references disclose systems that use directives, neither of them teach or suggest, among other things, identifying and associating a range of variables, as recited in claim 1. As explained, there is a **difference** between merely discussing the potential for values having a correlation to program path flows (as discussed by Donovan et al.) and actually performing the process of identifying and associating a range of variables, as asserted by the Examiner. Further, as previously mentioned by Applicant, neither of these references disclose or suggest coding an inline directive as part of a program comment statement associated with an execution path associated with the range of variables, as recited in this claim.

Accordingly, the cited art fails to support the rejection of claim 1 under 35 U.S.C. § 103(a), Applicant requests that the rejection of this claim be withdrawn and the claim allowed.

The Examiner rejects claims 10 and 35 for the same reasons set forth in connection with claim 1. See *Office Action, page 6, line 18-21*. As explained, Donovan

et al. and Reeve et al. do not support the rejection of claim 1. Accordingly, the cited art does not support the rejection of claims 10 and 35, and Applicant requests that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claims 2-5 and 36-39 depend from claims 1 and 35, respectively. As explained, the cited art does not support the rejection of claims 1 and 35. Accordingly, it follows that Donovan et al. and Reeve et al. also do not support the rejection of claims 2-5 and 36-39, and Applicant requests that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

The Examiner also maintains similar positions in rejecting claims 23 and 28. For example, the Examiner asserts that Donovan et al. teaches, among other things, “identifying a range of variables associated with a first execution characteristic” and “associating the range of variables with one of the execution characteristics.” See *e.g.*, *Office Action*, page 7, lines 5-11 and page 8, lines 10-19.

As explained above in connection with claim 1, the cited art does not support the Examiner’s assertions and the rejection of claims 23 and 28 under 35 U.S.C. § 103(a). For instance, neither Donovan et al. or Reeve et al. teach or suggest identifying and associating ranges of variables. Instead, Donovan et al. merely discloses using convention profiling techniques that do not involve identifying a range of variables.

Moreover, the Examiner is incorrect in relying on Col. 2, lines 21-25 of Donovan et al. to support the rejection of claims 23 and 28. As explained, these portions of Donovan et al. merely discusses concepts associated with program path flows and values, and is not related to, or provides support for, the Examiner’s assertions that

Donovan et al. teaches identifying a range of variable, as set forth in the Office Action. Therefore, Applicant requests that the rejection of claims 23 and 28 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claims 26 and 27 depend from claim 23. As explained, the cited art fails to support the rejection of claim 23. Accordingly, it follows the cited art also does not support the rejection of claims 26 and 27, and Applicant requests that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

The Examiner rejects claim 53 for the same reasons set forth in connection with claim 28. As explained, the cited art does not support the rejection of claim 28. Accordingly, it follows the cited art does not support the rejection of claim 53, and Applicant requests that the rejection of this claim under 35 U.S.C. § 103(a) be withdrawn and the claim allowed.

II. Rejections under 35 U.S.C. § 102(b)

The Examiner asserts that Donovan et al. teaches identifying a subprogram that has a first and a second execution characteristic and associating certain arguments that cause the subprogram to exhibit the first execution characteristic with a portion of the subprogram. In an attempt to establish support for these assertions, the Examiner relies on positions and passages of Donovan et al. used in support the rejection of claim 1 discussed above. See e.g., Donovan et al., col. 2, lines 21-25. As explained, Donovan et al. does not mention or even suggest identifying a range of values associated with a first execution characteristic of a subprogram and associating the range of variables with the a first execution path of the subprogram. **There is a**

difference between explaining the concept of how a program flow may change due to values of a program and actually identifying a range of values associated with a characteristic of a subprogram in the process of inlining a program. Nowhere does Donovan et al. mention that in determining placement of directives, a range of values is considered.

Therefore, Donovan et al. does not teach, among other things, associating certain arguments that cause the subprogram to exhibit the first execution characteristic with a portion of the subprogram, as asserted by the Examiner. Further, although Donovan et al. describes a system that uses directives, the reference falls short in describing or even suggesting any process or system that associates certain identified arguments with a portion of a program. As discussed, the mere fact that Donovan et al. may use directives in programs that include paths that may vary based on the value of an arguments in a conditional statement does not suggest or teach “identifying” certain arguments that cause the subprogram to exhibit the first execution characteristic of the subprogram, “associating” the certain arguments that cause the subprogram to exhibit the first execution characteristic with a portion of the subprogram, and “replacing” the portion of the subprogram that exhibits the first execution characteristic with program instructions that explicitly define operations of the first execution characteristic, as asserted by the Examiner.

Because Donovan et al. does not support the rejection of claim 14, Applicant requests that the rejection of this claim under 35 U.S.C. § 102(b) be withdrawn and the claim allowed.

The Examiner rejects claim 44 for reasons similar to those of claim 14. See *Office Action, page 3, lines 4-6*. As explained, the cited art does not support the rejection of claim 14. Accordingly, it follows that the cited art also does not support the rejection of claim 44, and Applicant requests that the rejection of this claim under 35 U.S.C. § 102(b) be withdrawn and the claim allowed.

Claims 15-19, 21, and 22; and 45-49, 51, and 52 depend from claims 14 and 44, respectively. As explained, the cited art does not support the rejection of claims 14 and 44. Accordingly, it follows that the cited art also does not support the rejection of claims 15-19, 21, 22, 45-49, 51, and 52 and Applicant requests that the rejection of these claims under 35 U.S.C. § 102(b) be withdrawn and the claims allowed.

III. Conclusion

In view of the foregoing remarks, Applicant submits that this claimed invention, is neither anticipated nor rendered obvious in view of the art cited by the Examiner.

Applicant therefore request the Examiner's reconsideration and reexamination of the application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 10, 2004

By: 

Joseph E. Palys
Reg. No. 46,508